

# *Storage of Future California Automotive Fuels*

---



Robert Wilkenfeld

Chevron Environmental  
Management Company

# *Product Risk Management*

---



## **Product Stewardship:**

*Delivering safe and environmentally sound products to customers.*

## **Product Integrity:**

*Delivering on-spec products all the time.*

# *Product Stewardship Issues*

---

## Increasing Alkylate Use:

- No significant new concerns

## Increasing Ethanol Use:

- Releases of neat ethanol during transportation & storage
  - Impacts to surface waters and existing subsurface releases of hydrocarbons
- Potential for increased corrosion
- Impacts to terminal wastewater systems (?)

# *Product Integrity Issues*

---

## Increasing Alkylate Use:

- No significant new concerns

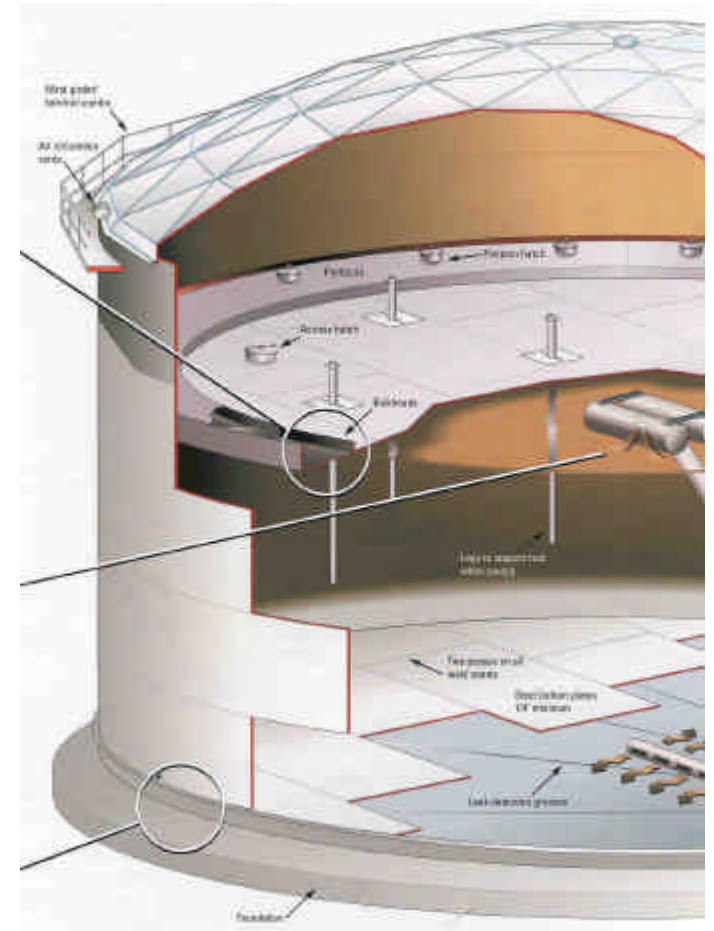
## Increasing Ethanol Use:

- Water content, acidity and particulates
- Need for dedicated transportation and storage facilities
- Bacteria contamination

# AST Release Prevention Measures

## *Chevron's Approach:*

- Double bottoms & release prevention barriers
- Internal coatings, water monitoring & removal
- In-tank leak detection
- Automated overfill protection systems
- Tank inspection (API 653)
- Piping inspection (API 570)
- Behavior based safety program

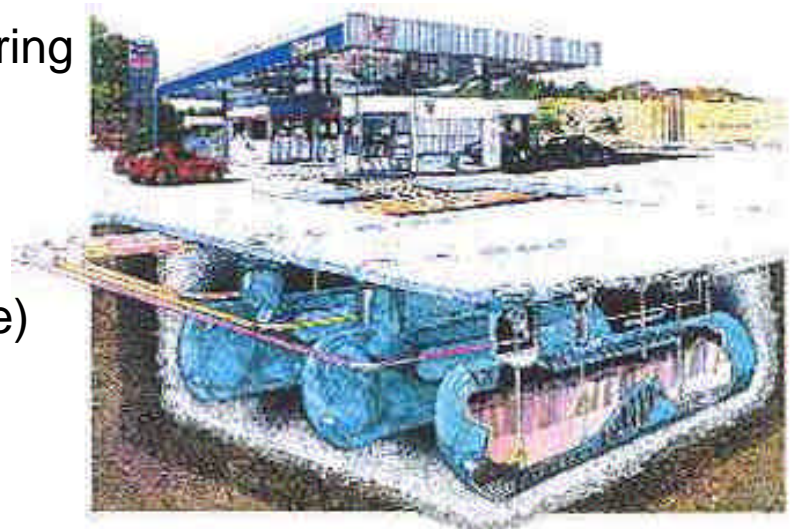


# UST Release Prevention Measures

---

## *Chevron's Nationwide Standards:*

- Tank specification exceeds industry norm
- All components compatible with  $\leq 15\%$  ETOH
- Electronic tank, line & containment monitoring
  - Annual certification
- Positive pump shut-off
- Positive overfill prevention devices
- DW rigid fiberglass piping (vs. flexible hose)
- Dispenser containment
- Caulk drive slab joints
- Submersible pump containment at all CA facilities
- Behavior based safety program



# *UST Release Prevention Measures*

---

## *Chevron's Evolving Standards:*

- Liquid-filled interstitial space for improved leak detection (3Q01)
- Swivel fill connections (1Q01)
- Drainless spill buckets (1Q01)
- Vapor recovery and containment monitoring system (in development)

